

server 106. This communication is implemented within the Java application as a series of extensible markup language ("XML") messages over transmission control protocol over Internet protocol ("TCP/IP"). A second stand-alone application is implemented as a background executable with no user interface. This executable uses the Microsoft Component Object Model, or "COM", to communicate with the Java application on one side, and the DLL of the interface component 113 on the other side.

[0020] Under the described embodiment with reference to Figures 14 - 27, component 112 is implemented using two components. The first component, an "OCX" component, implements the user interface functions, including the manipulation of the Outlook™ user interface, for example the manipulation of properties pages within Outlook™. OCX is a specific type of DLL defined by Microsoft. The OCX uses Microsoft COM to communicate with a DLL of the interface component 113, which in turn accesses the Outlook™ Object Model as described above. The second component is a DLL that handles the communication with the registration server 106, using XML messages over TCP/IP. This DLL uses COM to communicate with the OCX, and also uses COM to communicate with the interface component 113.

[0021] As noted above, the TSPS 103, in one embodiment, includes a one-number system that allows a user to give one number to callers that wish to call various devices and send faxes. An example of a telephony service provider system is described in U.S. Patent No. 5,752,191, entitled "Telephone Control System Which Connects a Caller With a Subscriber at a Telephone Address," U.S. Patent No. 5,610,970, entitled "Telephone System With Scheduled Handling of Calls," U.S. Patent No. 5,673,299, entitled "Adjunct Controller for a Telephone System" and U.S. Patent Application Serial No. 60/223,160, titled System and Method for Universal Access of Messages, such as Voice Mail Messages, filed August 7, 2001.

[0022] The user computer 111 communicates with one or more other computers, such as an attendant computer 118, through a network, such as a local area

network (LAN) 116. In one embodiment, the attendant computer 118 is a computer used by anyone to whom the user may want to refer certain communications, including voice calls, that are sent to the user (e.g., a secretarial computer).

[0023] The TSPS 103 includes software and hardware that communicates with the public switched telephone network (PSTN) 102 to receive voice calls made through the PSTN and manage calls, via the user computer 111, according to the user's wishes. The user may subscribe to the services provided by the TSPS, which the user may access via the user phone 101. The user may also access features of the TSPS via the user computer 111 and the registration server 106.

[0024] The registration server 106 transmits data between the user computer 111 (including the interface component 113, the communications, registration, and user interface component 112), the TSPS 103, and the various databases 107, 108, and 109. The registration information database 107 stores information about the user, including a current user status. The current user status includes a location of the user (e.g., a network computer the user is currently logged onto) and whether the user is available to answer certain calls. For example, if the user has used her computer 111 to log onto the internet 110, then the communications, registration, and user interface component 112 may send a message via the Internet 110 to the registration server 106 indicating that the user is available and on-line. The registration server 106 will store this information in registration information database 107. This database contains the user's current TCP/IP address on the Internet 110, along with any data or indication that the user may have passed via the user interface component 112 indicating the user's desire for handling of calls (as described below). Under one embodiment, this information may be used to provide a real-time indication to the user via the computer 111 of an incoming call, including the identity of the incoming caller. This information may also be used to modify the call handling of the system, for example, to override or modify the screening instructions provided by the contact info database 108. In one embodiment, the registration information database 107

further stores an identity and location of an attendant to which certain calls are to be forwarded. The communications, registration and user interface component 112 includes a the user interface process which provides a graphical user interface as described in figs 3 – 12, or alternatively in figs 14 – 27. The component 112 further includes a registration process that registers with the registration server 106 when the user logs on via the user interface, and a communications process that is responsible for handling messages sent between the registration server and the user's computer. The interface component 113 includes a software process that acts as a communications interface between the component 112 and the contact management software 114 by invoking the APIs of the contact management software, such as the Outlook™ API, for example to query the contact management software 114's databases and/or to manipulate its user interface.

[0025]

The contacts information database 108 stores information about the user's contacts. In one embodiment, the contact information is loaded into the database 108 from the contact management system 114, either automatically at intervals, or in response to a user command. The calendar events database 109 stores information about the user's calendar, and the source of calendar information is the contacts management software 114. Thus, the calendar events database 109 may be used to store information regarding the meetings and activities stored in the calendar of the user's contact management software 114. This information is then retrieved from the contacts management software 114 and stored in the calendar events database 109 in the same manner as the contact information database 108 retrieved its data, as described herein. Information in the calendar events database 109 is used to handle calls. For example, all calls or calls from particular callers may be handled differently on different days, or when certain types of meetings are in progress. Alternatively, the information may be used to modify the call handling instructions based on the type of meeting currently in progress, or based upon other attributes associated with the meeting.